USB Flash
Module and Drive (UFM/UFD)

Compact, Easy-to-Integrate Embedded Storage

With their high-performance, high reliability and low cost-per-megabyte, HGST USB flash products meet the design requirements of embedded devices, including industrial PCs, point-of-sale (POS) terminals, networking equipment and automotive diagnostic applications.

HGST USB Flash Modules (UFMs) are plug-and-play USB 2.0 embedded storage solutions that simplify design and speed time-to-market. The 10-pin connector is a common interface found on many embedded system boards, and the standard mounting hole makes it easy to secure the module for rugged applications.

HGST USB Flash Drives (UFDs) are removable thumb drives with a high electrostatic discharge (ESD)-rated enclosure for applications that require Network Equipment-Building System (NEBS) Level 3 compliance. The standard USB 2.0 Series A interface provides designers with the flexibility of a true plug-and-play portable embedded storage device.

Fast, Reliable and Cost-Effective

The USB standard is one of the simplest and most widely used protocols for embedded applications. Its widespread support, combined with its small size and low power, makes it an ideal boot device, code storage, or data logging solution where space, power and cost are key design considerations.

Features and Benefits

Feature / Function	Benefits
High Performance	Up to 33MB/s sustained read and up to 26MB/s sustained write
Rugged Design	UFM: High tolerance to shock, vibration, altitude and temperature protects against mechanical failures UFD: Rugged ESD rated enclosure (tested for immunity from 8kV contact and 15kV air) protects against mechanical failures as a result of electrostatic discharge
Full data-path protection	Enhanced data integrity with full data-path protection and built in ECC engine that corrects up to 12 bits/512-Byte errors.
High endurance	Advanced wear-leveling and block management with guaranteed 2M program/erase cycles
Simple integration	USB 2.0 compliant. Plug-and-play for fast time-to-market
Physical interface	UFM: Choice of standard 2x5 pin (2.54mm height) or low-profile (2mm) 9-pin connector for integration flexibility UFD: Standard series A connector

HGST
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A True Enterprise-Class SSD for the Embedded Market

MACH16 Slim SATA delivers the features required for enterprise computing and other mission-critical applications where down-time is not an option.

Information and Technical Support
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Specifications

	USB Flash Drive	USB Flash Module
Interface		
Capacity	1/2/4/8Gb SATA	1/2/4/8/16GB
Type	USB 2.0	USB 2.0
Form Factor	Thumb Drive	10-pin Module
Performance		
Transactional Performance (Read IOPS)	2,000	2,000
Transactional Performance (Write IOPS)	640	640
Average Response Time	<90ms	<90ms
Transfer Rate (Read)	33MB/s	33MB/s
Transfer Rate (Write)	26MB/s	26MB/s
MTBF	4 million hours	2 million hours
Physical		
Size (L x W x H)	66.1mm X 16.6mm X 7.0mm	38.0mm X 23.0mm X 10.2mm
Power	<160mA	<160mA
Power Supply	5V or 3.3V	5V or 3.3V
Environmental		
Operational Temperature	-40°C to 85°C	-40°C to 85°C
Humidity (Non-Condensing)	85°C, 85% RH	85°C, 85% RH
Shock	1500G / 20G	1500G / 20G
Altitude	-1,000 to 85,000 ft	-1,000 to 85,000 ft
Compliance		
	RoHS-6, EU Directive	RoHS-6, EU Directive

[1] One GB is equal to one billion bytes when referring to hard drive capacity. Accessible capacity will vary depending on the operating environment and formatting.
[2] Portion of buffer capacity used for drive firmware
[3] MB is equal to MillionBytes
[4] Excludes command overhead
[5] MTBF target is based on a sample population and is estimated by statistical measurements and acceleration algorithms under median operating conditions. MTBF ratings are not intended to predict an individual drive's reliability. MTBF does not constitute a warranty.

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